

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

WEBBER, David, Brian  
Davies Collison Cave  
1 Little Collins Street  
Melbourne, VIC 3000  
AUSTRALIE

Date of mailing (day/month/year) 24 September 2001 (24.09.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 2310879/DBW	
International application No. PCT/AU00/00797	International filing date (day/month/year) 30 June 2000 (30.06.00)

## 1. The following indications appeared on record concerning:

☒ the applicant    ☐ the inventor    ☐ the agent    ☐ the common representative

Name and Address TELSTRA R & D MANAGEMENT PTY LTD Acn 070 562 935 2/242 Exhibition Street Melbourne, VIC 3000 Australia	State of Nationality AU	State of Residence AU
	Telephone No. --	
	Facsimile No. --	
	Teleprinter No.	

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person    ☒ the name    ☐ the address    ☐ the nationality    ☐ the residence

Name and Address TELSTRA NEW WAVE PTY LTD 242 Exhibition Street Melbourne, VIC 3000 Australia	State of Nationality AU	State of Residence AU
	Telephone No. --	
	Facsimile No. --	
	Teleprinter No.	

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Eric LESOT (Fax 338.87.40) Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

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## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 26 February 2001 (26.02.01)	
International application No. PCT/AU00/00797	Applicant's or agent's file reference 2310879/DBW
International filing date (day/month/year) 30 June 2000 (30.06.00)	Priority date (day/month/year) 02 July 1999 (02.07.99)
Applicant JIANG, Jason et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
30 January 2001 (30.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer F. Baechler Telephone No.: (41-22) 338.83.38
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# PATENT COOPERATION TREATY

WO 01/02996  
PCT/AU00/0079

**PCT**

## NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

WEBBER, David, Brian  
Davies Collison Cave  
1 Little Collins Street  
Melbourne, VIC 3000  
AUSTRALIE

MONDAY, 22 JAN 2001

Date of mailing (day/month/year) 11 January 2001 (11.01.01)		
Applicant's or agent's file reference 2310879/DBW		IMPORTANT NOTICE
International application No. PCT/AU00/00797	International filing date (day/month/year) 30 June 2000 (30.06.00)	Priority date (day/month/year) 02 July 1999 (02.07.99)
Applicant TELSTRA R & D MANAGEMENT PTY LTD et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:  
AG,AU,BZ,DZ,KP,KR,MZ,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:  
AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW  
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).
3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 11 January 2001 (11.01.01) under No. WO 01/02996

### REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

### REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 10 SEP 2001

WIPO PCT

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Applicant's or agent's file reference 2310879	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. <b>PCT/AU00/00797</b>	International Filing Date ( <i>day/month/year</i> ) 30 June 2000	Priority Date ( <i>day/month/year</i> ) 2 July 1999
International Patent Classification (IPC) or national classification and IPC  Int. Cl. <sup>7</sup> G06F 17/30, G06N 3/02		
Applicant  TELSTRA R & D MANAGEMENT PTY LTD et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 3 sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of 3 sheet(s).
3.	This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 30 January 2001	Date of completion of the report 27 August 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  <b>CATHERINE REES</b> Telephone No. (02) 6283 2811

**I. Basis of the report**

1. With regard to the **elements** of the international application:\*
- ☐ the international application as originally filed.
- ☒ the description, pages **1 - 23**, as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☒ the claims, pages **24, 25, 28, 29 and 31**, as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages **26, 27 and 30**, received on **9 August 2001** with the letter of **8 August 2001**.
- ☒ the drawings, pages **1/4 - 4/4**, as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of
2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1 - 54	YES
	Claims	NO
Inventive step (IS)	Claims 1 - 54	YES
	Claims	NO
Industrial applicability (IA)	Claims 1 - 54	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**Citations:

- a) WO 97/12333
- b) WO 99/05618

Novelty (N) and Inventive Step (IS):

The invention must be considered to be both novel and inventive when compared with the above citations. The above citations disclose search engines that identify documents and then weight them according to search term importance while the invention creates a weighted query vector for searching.

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17. A search system as claimed in claim 16, wherein said index means obtains the product of said query vector and the text vector of the nodes of a level of said structure, and obtains said product for nodes of a succeeding level of said structure which are connected to nodes for which the product has exceeded a predetermined threshold.
- 5 18. A search system as claimed in claim 17, wherein the indices of nodes having a query vector node vector product higher than a predetermined threshold are output by said index means.
- 10 19. A search system as claimed in claim 1, wherein said index means is a self generating neural network having nodes of weight vectors representing categories and terms of said data, said nodes further including pointers to a first child node and a next sibling node, and leaf nodes of said network including an index to said data.
- 15 20. A search system as claimed in claim 19, wherein said weights are normalised, and said network is searched in response to a query by determining the inner product of said query vector and said weight vectors to locate nodes producing a high inner product.
- 20 21. A search system as claimed in claim 18 or 20, including cluster means for processing indices output by said index means in response to said query, generating term frequency vectors for data indexed by said indices, comparing similarities between the indexed data on the basis of a distance between said frequency vectors and generating content based categories on the basis of said distances and placing the output indices into said categories for display.
- 25 22. A search system as claimed in claim 21, including feature extraction means for receiving content features of said categories from said cluster means and selecting a unique descriptive feature for each category.
- 30 23. A search system as claimed in claim 21, wherein said cluster means generates a plurality of clusters of the indices and determines the quality of each cluster on the basis of

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inter-cluster distances and intra-cluster distances between term frequency vectors for the indices of the clusters relative to a term frequency vector centroid for each cluster.

24. A search system as claimed in claim 1, including feature extraction means for  
5 accessing respective unique and important terms of said data and adding said terms to said dictionary.

25. A search system as claimed in claim 1, including feature extraction means for  
extracting indices and respective terms of said data as term weight pairs, the weights of the  
10 pairs being based on the importance and uniqueness of component ngrams of the terms of an indexed document and the terms being extracted on the basis of the distribution of ngrams in said document space and wherein said index means is a neural network generated on the basis of training examples including said term weight pairs.

15 26. A search system as claimed in claim 25, wherein said neural network is a self generating neural network and the format of said query vectors and vectors of nodes of said network is generated on the basis of said training examples.

27. A search engine stored on a computer readable storage medium, including:  
20 a query analyser for processing a query to assign respective weights to terms of said query and to generate a query vector including said weights; and  
an index network responsive to said query vector to output at least one index to data in response to said query.

25 28. A search engine as claimed in claim 27, wherein the weights are assigned based on the importance of the terms in said query.

29. A search engine as claimed in claim 27, wherein said weights are assigned to said  
query based on the grammatical structure of the query and the meaning of the terms of the  
30 query.



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46. A search engine as claimed in claim 45, wherein said weights are normalised, and said network is searched in response to a query by determining the inner product of said query vector and said weight vectors to locate nodes producing a high inner product.

5 47. A search engine as claimed in claim 44 or 46, including cluster means for processing indices output by said index means in response to said query, generating term frequency vectors for data indexed by said indices, comparing similarities between the indexed data on the basis of a distance between said frequency vectors and generating content based categories on the basis of said distances and placing the output indices into said categories for display.

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48. A search engine as claimed in claim 47, including feature extraction means for receiving content features of said categories from said cluster means and selecting a unique descriptive feature for each category.

15 49. A search engine as claimed in claim 47, wherein said cluster means generates a plurality of clusters of the indices and determines the quality of each cluster on the basis of inter-cluster distances and intra-cluster distances between term frequency vectors for the indices of the clusters relative to a term frequency vector centroid for each cluster.

20 50. A search engine as claimed in claim 27, including feature extraction means for accessing respective unique and important terms of said data and adding said terms to said dictionary.

51. A search engine as claimed in claim 27, including feature extraction means for  
25 extracting indices and respective terms of said data as term weight pairs, the weights of the pairs being based on the importance and uniqueness of component ngrams of the terms of an indexed document and the terms being extracted on the basis of the distribution of ngrams in said document space and wherein said index means is a neural network generated on the basis of training examples including said term weight pairs.

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